

**CLAIM(S)**

**What is claimed is:**

- 5           1.     A high loft flame resistant batting, comprising:
- (a)    a base layer comprising
- (i)     10 to 30 parts by weight heat resistant fibers,
- (ii)    35 to 55 parts by weight of a cellulose fiber that
- 10                   retains at least 10 percent of its fiber weight
- when heated in air to 700°C at a rate of 20
- degrees C per minute, and
- (iii)   15 to 25 parts by weight binder material;
- (b)    a resilient layer comprising
- 15               (i)     0 to 50 parts by weight modacrylic fibers,
- (ii)    50 to 85 parts by weight polyester fiber, and
- (iii)   15 to 25 parts by weight binder material;
- the base layer comprising 20 to 70 parts by weight and the resilient layer
- comprising 80 to 30 parts by weight of the batting, based on the total
- 20     weight of those two layers, the batting having a total thickness of 1.25
- centimeters (0.5 inches) or greater.
2.     The high loft flame resistant batting of claim 1 wherein the
- heat resistant fiber is an organic fiber that retains 90 percent of its fiber
- 25     weight when heated in air to 500°C at a rate of 20 degrees C per minute.
3.     The high loft flame resistant batting of claim 2 wherein the
- heat-resistant fiber comprises a para-aramid, polybenzazole,
- polybenzimidazole, or polyimide polymer.
- 30               4.     The high loft flame resistant batting of claim 3 wherein the
- para-aramid is poly(paraphenylene terephthalamide).
5.     The high loft flame resistant batting of claim 1 wherein the
- 35     cellulose fiber is a viscose fiber containing silicic acid.

6. The high loft flame resistant batting of claim 1 having a total composite density of 0.33 to 2.0 pounds per cubic foot.

5 7. The high loft flame resistant batting of claim 1 having a basis weight of 8 to 12 ounces per square yard.

8. The high loft flame resistant batting of claim 1 wherein modacrylic fibers are present in the resilient layer in the amount of 20 to  
10 50 parts by weight.

9. The high loft flame resistant batting of claim 1 wherein polyester fibers are present in the resilient layer in the amount of 30 to 60 parts by weight.

15 10. The high loft flame resistant batting of claim 1 wherein heat resistant fibers are present in the base layer in the amount of 20 to 30 parts by weight.

20 11. The high loft flame resistant batting of claim 1 wherein cellulose fibers are present in the base layer in the amount of 40 to 50 parts by weight.

12. The high loft flame resistant batting of claim 1 wherein the  
25 base layer further contains polyester fibers in the amount of up to 15 parts by weight.

13. The high loft flame resistant batting of claim 1 wherein the base layer further contains modacrylic fibers in the amount of up to 5 parts  
30 by weight.

14. The high loft flame resistant batting of claim 1 wherein the binder material is a binder fiber.

15. An article comprising the high loft flame resistant batting of claim 1 as a fire blocking layer.

5            16. A mattress comprising the high loft flame resistant batting of claim 1 as a fire blocking layer.

17. A process for making a high loft flame resistant batting, comprising the steps of:

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- a) forming a base layer fiber mixture comprising
  - (i) 10 to 30 parts by weight heat resistant fibers,
  - (ii) 35 to 55 parts by weight of a cellulose fiber that retains at least 10 percent of its fiber weight when heated in air to 700 C at a rate of 20 degrees C per minute, and
  - (iii) 15 to 25 parts by weight binder fibers;

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- b) forming a resilient layer fiber mixture comprising
  - (i) 0 to 50 parts by weight modacrylic fibers,
  - (ii) 50 to 85 parts by weight polyester fiber, and
  - (iii) 15 to 25 parts by weight binder fibers;

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- c) forming a layered batt having a total thickness of at least 1.25 centimeters (0.5 inches), wherein one layer contains the base layer fiber mixture and another layer contains the resilient layer fiber mixture; and

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- d) heating the layered batt to activate the binder fibers and form a high loft batting.

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18. The process of claim 17 wherein the base layer fiber mixture is present in the layered batt in an amount of 20 to 70 parts by weight of the total weight of the high loft batting.

19. The process of claim 17 wherein the resilient layer fiber mixture is present in the layered batt in an amount of 80 to 30 parts by weight of the total weight of the high loft batting.

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20. The process of claim 17 wherein the layered batt is formed by first forming separate webs of the base layer fiber mixture and the resilient layer fiber mixture and then layering the webs on top of each other.

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21. The process of claim 17 comprising the additional step:  
a) recycling a portion of the high loft batting wherein the fibers of the recycled portion become part of the base layer fiber mixture.

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22. The process of claim 21 wherein the recycled fibers comprise no more than 25 parts by weight of the base layer fiber mixture.

23. A fire blocking quilt comprising outer fabric ticking or cover fabric layer, one or more layers of a layered high loft flame resistant batting, and optionally a stitch-backing layer;

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wherein the high loft batting comprises

a base layer comprising

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- (i) 10 to 30 parts by weight heat resistant fibers,
- (ii) 35 to 55 parts by weight of a cellulose fiber that retains at least 10 percent of its fiber weight when heated in air to 700°C at a rate of 20 degrees C per minute, and

- (iii) 15 to 25 parts by weight binder material; and

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a resilient layer comprising

- (i) 0 to 50 parts by weight modacrylic fibers,
- (ii) 50 to 85 parts by weight polyester fiber, and
- (iii) 15 to 25 parts by weight binder material;

the base layer comprising 20 to 70 parts by weight and the resilient layer comprising 80 to 30 parts by weight of the batting, based on the total weight of those two layers, the batting having a total thickness of at least 1.25 centimeters (0.5 inches).

24. A method of fire blocking an article, comprising the steps of
- a) combining a layer of a fabric ticking or upholstery, and a high loft batting, and optionally a stitch backing layer, the high loft batting comprising
- a base layer comprising
- (i) 10 to 30 parts by weight heat resistant fibers,
  - (ii) 35 to 55 parts by weight of a cellulose fiber that retains at least 10 percent of its fiber weight when heated in air to 700°C at a rate of 20 degrees C per minute, and
  - (iii) 15 to 25 parts by weight binder material; and
- a resilient layer comprising
- (i) 0 to 50 parts by weight modacrylic fibers,
  - (ii) 50 to 85 parts by weight polyester fiber, and
  - (iii) 5 to 25 parts by weight binder material;
- the base layer comprising 20 to 70 parts by weight and the resilient layer comprising 80 to 30 parts by weight of the batting, based on the total weight of those two layers, the batting having a total thickness of at least 1.25 centimeters (0.5 inches),
- b) sewing the layers together to form a fire blocked quilt or upholstery fabric, and

- c) incorporating the fire blocked quilt or upholstery fabric into the article.

25. The process of claim 23 wherein the article is a mattress.

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